

REMARKS

Claims 1-81 are now pending. No claims are allowed. Claims 1-81 were rejected in an office action dated January 16, 2003. Claims 6, 11, 33, 38, 60, and 65 have been cancelled without prejudice or disclaimer. Claims 1-5, 28-32, and 55-59 have been amended to further particularly point out and distinctly claim subject matter regarded as the invention. No “new matter” has been added by the amendment.

The 35 U.S.C. § 102 Rejection

Claims 1-81 stand rejected under 35 U.S.C. § 102 (e) as being allegedly anticipated by Wilkinson et al.^{1 2} This rejection is respectfully traversed. As all the independent claims have been amended to include limitations not shown or suggested by the cited art, the Examiner’s objections should now be rendered moot.

MPEP § 2131 provides:

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described in a single prior art reference.³ The identical invention must be shown in as complete detail as contained in the claim.⁴ The elements must be arranged as required by the claim.⁵

Each and every element as set forth in the present claims are not found in Wilkinson et al.

Furthermore, the various combinations of elements proposed by the Office Action are never

¹ USP 6,308,317.

² Office Action dated January 16, 2003, ¶ 2.

³ *Verdegaal Bros. v. Union Oil Co. Of California*, 814 F.2d 628,631, 2 USPQ2d 1051,1053 (Fed. Cir. 1987).

⁴ *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913,1920 (Fed. Cir. 1989).

⁵ MPEP § 2131.

arranged by Wilkinson et al. in the same manner as proposed by the Office Action or as required by the present claims.

Independent Claims 1-5, 28-32, and 55-59

Amended claims 1-5, 28-32, and 55-59 specify that the corresponding token has a token type and that tokens belonging to the same token type represent the same kind of referenceable item, and where each kind of referenceable item in a package has its own independent scope for tokens of the corresponding token type. Wilkinson et al. does not teach or suggest these elements. Rather, Wilkinson et al. discloses a string to ID output map file that contains previously defined string to ID mappings.⁶

In the rejection of claims 6 and 11, the Examiner states:

In reference to the tokens belonging to the same token types (claims 6 and 11), see (col. 5 lines 41-57) that the first and/or second application may have class file format(s), which implies that they may be the same type or a different type.⁷

The Applicants respectfully disagree. Contrary to the Examiner's statement, Wilkinson et al. does not disclose generating one or more token types, such that tokens belonging to the same token type represent the same kind of referenceable item. The limitation in claims 6 and 11 is not merely that tokens may belong to the same token types. Rather, the limitation is one or more token types, *such that tokens belonging to the same token type represent the same kind of referenceable item*. The Examiner is reminded that the mere absence from a reference of an

⁶ Wilkinson et al. at col. 8 lines 51-61 and FIG. 3 reference numeral 30.

⁷ Office Action p. 4.

explicit requirement of a claim cannot be reasonably construed as an affirmative statement that the requirement is in the reference.⁸

Furthermore, in support of his contention, the Examiner cites a portion of Wilkinson et al. that discloses a first and/or second application may have class file format(s). The Examiner then reasons that “they” may be the same or a different type. It is unclear what the word “they” refers to in this context. If “they” refers to class files, the Examiner is arguing that Wilkinson et al. discloses class files may have same or different types, which says nothing about the claimed limitation that *tokens* belonging to the same token type represent the same kind of referenceable item. With this Amendment, independent claims 1-5, 28-32, and 55-59 have been modified to include the limitations of cancelled claims 6 and 11.

Embodiments of the present invention as claimed in amended independent claims 1-5, 28-32, and 55-59 assign tokens in a way that preserves object oriented concepts, where a package contains one or more classes and a class contains one or more methods. An ID assigned to each of these elements is unique within the scope of the kind of item referenced. In contrast, the tokens of Wilkinson et al. are only unique within the entire scope of a software application.

Wilkinson et al. states:

Each ID uniquely identifies a particular object, class, field or method in the application 20.⁹

Thus, Wilkinson et al. teaches using *a single* token to uniquely identify an item within the entire scope of a software application. More generally, embodiments of the present invention as claimed in amended claims 1-5, 28-32, and 55-59 assign tokens in a way that preserves the

⁸ *In re Evanega*, 829 F.2d 1110, 4 USPQ2d 1249 (Fed. Cir. 1987).

semantics of a programming language, making the embodiments applicable to any program that has scoping rules.

Linking is simplified in the present invention relative to Wilkinson et al. Linking in Wilkinson et al. requires an exhaustive search for a fully qualified name. In Wilkinson et al., calling a method requires examining multiple packages and methods within those packages until one with the appropriate reference to the constant pool is found. The approach of Wilkinson et al. is similar to the normal Java environment (as opposed to the Java Card™ environment), whereby resolution of a symbol requires performing an exhaustive search until a referenced item identified by the symbol being searching for is found.

In contrast to Wilkinson et al., resolution in the present invention is streamlined. This is due to the way tokens are assigned. Figures 7D, 7E and 7F and the accompanying text describe tokens used for static items, or items that are not dependent upon a particular instance. These tokens may be used in programs written using structured languages (e.g. FORTRAN). They may also be used for static items in programs written using an object oriented language (e.g. Java). Figures 7G, 7H and 7I and the accompanying text describe tokens used for context-dependent items, or items that are dependent upon a particular instance. An example of context-dependent item is a virtual method in Java.

Support for the amendment made to claims 1-5, 28-32, and 55-59 is provided in the original specification, page 16 line 25 to page 17 line 5, page 18 lines 4-6, page 20 lines 32-33, page 21 lines 23-29, page 23 line 16 to page 25 line 5, and FIGS. 4B, 5, 7A-7C and 8A-8B.

⁹ Wilkinson et al. at col. 9 lines 33-34.

Since all elements of amended independent claims 1-5, 28-32, and 55-59 are not disclosed in the Wilkinson et al. reference, the U.S.C. § 102 rejection is unsupported by the art and should be withdrawn.

Dependent Claims

Claims 7-10 and 16-19 depend from claim 1. Claims 12-15 and 20-21 depend from claim 3. Claims 22-27 depend from claim 5. Claims 34-37 and 43-46 depend from claim 28. Claims 39-42 and 47-48 depend from claim 30. Claims 49-54 depend from claim 32. Claims 61-64 and 70-73 depend from claim 55. Claims 66-69 and 74-75 depend from claim 57. Claims 76-81 depend from claim 59. Claims 1, 3, 5, 28, 30, 32, 55, 57, and 59 being allowable, claims 7-10, 12-27, 34-37, 39-54, 61-64, and 66-81 must also be allowable.

Additionally, claims 7-10, 12-27, 34-37, 39-54, 61-64, and 66-81 recite additional limitations not disclosed by Wilkinson et al.

Claim 7

Claim 7 recites:

The method of claim 1, further comprising recording in an image of said package a mapping between said token and said referenceable item.

Contrary to the Examiner's statement, Wilkinson et al. does not disclose recording in an image of a package a mapping between a token and a referenceable item. Rather, Wilkinson et al. discloses a mapping that is separate from the package. More specifically, Wilkinson et al. discloses a card class file converter that receives application class files and a string to ID input

map, and outputs a card class file *and a string to ID output map*.¹⁰ For this additional reason, the U.S.C. § 102 rejection of claim 7 is unsupported by the art and should be withdrawn.

Claim 8

Claim 8 recites:

The method of claim 1 wherein said referenceable item comprises a class and said reference comprises a package and a class token.

The Examiner states:

The object targets comprises a class/package tokens (see again claim 2) and inherently tokens become class/package tokens (re claims 8 and 13).¹¹

The Applicants respectfully disagree. Contrary to the Examiner's statement, Wilkinson et al. does not disclose a referenceable item comprises a class and the reference comprises a package and a class token. As mentioned above, Wilkinson et al. teaches using a *single* token to uniquely identify an item within the entire scope of a software application.

Furthermore, the Applicants respectfully submit that such conclusory allegations regarding the alleged inherency of the teachings are improper. According to the MPEP¹², an Examiner must provide a rationale or evidence tending to show inherency. The fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic.¹³ Furthermore, "In relying upon the theory of inherency, the Examiner must provide a basis in fact and/or technical reasoning to reasonably

¹⁰ Wilkinson et al. at col. 11 lines 48-58 and FIGS. 3 and 5. (emphasis added)

¹¹ Office Action p. 4.

¹² MPEP § 2112.

¹³ *In re Rijckaert*, 9 F.3d 1531, 1534, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993).

support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art.”¹⁴

The Applicants respectfully suggest that the Examiner has failed to provide a basis in fact and/or technical reasoning to reasonably support the determination that tokens become class/package tokens necessarily flows from the teachings of Wilkinson et al.

Nowhere in Wilkinson et al. does it disclose that a referenceable item comprises a class and a reference comprises a package *and* a class token. For this additional reason, the U.S.C. § 102 rejection of claim 8 is unsupported by the art and should be withdrawn.

Claims 9-10

Claim 9 recites:

The method of claim 1 wherein said referenceable item comprises a field and said reference comprises a package, a class and a field token.

Claim 10 recites:

The method of claim 1 wherein said referenceable item comprises a method and said reference comprises a package, a class and a method token.

The Examiner states:

In reference to the various tokens of claims 9-10 and 14-15, see the Wilkinson’s references in col. 5. lines 41-57.¹⁵

The Applicants respectfully disagree. Contrary to the Examiner’s statement, Wilkinson et al. does not disclose a referenceable item comprising a field and a reference comprising a

¹⁴ *Ex parte Levy*, 17 USPQ2d 1461 (Bd. Pat. App. & Inter. 1990) (emphasis in original).

¹⁵ Office Action p. 4.

package, a class and a field token. Nor does Wilkinson et al. disclose a referenceable item comprising a method and a reference comprising a package, a class and a method. Again, as mentioned above, Wilkinson et al. teaches using a *single* token to uniquely identify an item within the entire scope of a software application.

In support of his contention, the Examiner cites the following:

Implementations of the invention may include one or more of the following. The first and/or second applications may have class file format(s). The first and/or second applications may include byte codes, such as Java byte codes. The first instructions may be generalized or renumbered versions of the second instructions. The second instructions may include constant references, and the first instructions may include constants that replace the constant references of the second instructions. The second instructions may include references, and the references may shift location during the conversion of the second instructions to the first instructions. The first instructions may be relinked to the references after the shifting. The first instructions may include byte codes for a first type of virtual machine, and the second instructions may include byte codes for a second type of virtual machine. The first type is different from the second type.¹⁶

The above citation indicates one set of instructions may include constant references and another set of instructions may include constants that replace the constant references of the first set of instructions. However, it does not disclose a referenceable item comprises a method and a reference comprises a package, a class *and* a field token. Furthermore, the citation does not disclose a referenceable item comprises a method and a reference comprises a package, a class *and* a method token. For this additional reason, the U.S.C. § 102 rejection of claims 9 and 10 is unsupported by the art and should be withdrawn.

Claim 16

Claim 16 recites:

¹⁶ Wilkinson et al. at col. 5 lines 41-57.

The method of claim 1 wherein
said package further comprises interfaces and interface method definitions; and
said method further comprises constructing at least one interface method table for a class.

The Examiner states:

The features of claim 16 are taught via Wilkinson's interpreting (translating function),
see the rejection of claim 4.

The Applicants respectfully disagree. Contrary to the Examiner's statement, Wilkinson et al. does not disclose constructing at least one interface method table for a class. The Applicants also suggest the Examiner's generalized rejection is improper. In a U.S.C. § 102 rejection, the identical invention must be shown in as complete detail as contained in the claim.¹⁷ The fact that Wilkinson et al. performs a translating function is not the level of detail required for a proper U.S.C. § 102 rejection. For this additional reason, the U.S.C. § 102 rejection of claim 16 is unsupported by the art and should be withdrawn.

Claims 17-27

The Examiner states:

The features of claims 17-27 are standard to object oriented programming and therefore, inherent to Wilkinson's system which utilizes the Java programming language, col. 5 lines 10-13.¹⁸

The Applicants respectfully disagree. Contrary to the Examiner's statement, the features of claims 17-27 are not *standard* to object oriented programming. Nor are the features of claims 17-27 inherent to Wilkinson et al.'s system. The Applicants respectfully submit that such conclusory allegations regarding the alleged inherency of the teachings are improper. The Examiner has not provided a rationale or evidence tending to show inherency. The fact that a

¹⁷ *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913,1920 (Fed. Cir. 1989).

certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic.¹⁹ Furthermore, "In relying upon the theory of inherency, the Examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art."²⁰

Claim 17

Claim 17 recites:

The method of claim 16 wherein said constructing comprises:
obtaining said interfaces;
constructing an ordered table of methods for each interface; and
recording an indication of the implementation of the interface method for each table entry.

The Applicants respectfully suggest that the Examiner has failed to provide a basis in fact and/or technical reasoning to reasonably support the determination that the constructing step as claimed in claim 17 *necessarily* flows from the teachings of Wilkinson et al. The Examiner has not shown does that the constructing step in Wilkinson et al. *must* comprise obtaining interfaces, constructing an ordered table of methods for each interface, and recording an indication of the implementation of the interface method for each table entry. For this additional reason, the U.S.C. § 102 rejection of claim 17 is unsupported by the art and should be withdrawn.

Claim 18

Claim 18 recites:

¹⁸ Office Action p. 4.

¹⁹ *In re Rijckaert*, 9 F.3d 1531, 1534, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993).

²⁰ *Ex parte Levy*, 17 USPQ2d 1461 (Bd. Pat. App. & Inter. 1990) (emphasis in original).

The method of claim 17 wherein said ordered interface method table entries correspond to token values assigned to interface methods within the scope of said class.

The Applicants respectfully suggest that the Examiner has failed to provide a basis in fact and/or technical reasoning to reasonably support the determination that the ordered interface method table as claimed in claim 18 *necessarily* flows from the teachings of Wilkinson et al. The Examiner has not shown Wilkinson et al. teaches an ordered table of methods, nor that method table entries in such an ordered interface method table *must* correspond to token values assigned to interface methods within the scope of the class. For this additional reason, the U.S.C. § 102 rejection of claim 18 is unsupported by the art and should be withdrawn.

Claim 19

Claim 19 recites:

The method of claim 18 wherein said indication of said implementation of said interface method comprises an index into a virtual method table.

The Applicants respectfully suggest that the Examiner has failed to provide a basis in fact and/or technical reasoning to reasonably support the determination that the indication of the implementation of the interface method as claimed in claim 19 *necessarily* flows from the teachings of Wilkinson et al. For this additional reason, the U.S.C. § 102 rejection of claim 19 is unsupported by the art and should be withdrawn.

Claim 20

Claim 20 recites:

The method of claim 3, further comprising resolving interface method references during execution using interface method tables, said resolving comprising:
obtaining an associated instance;
obtaining a class description of said instance;
locating an interface table of said interface method in said class description;
locating an interface method entry within an interface table of a referenced method; and
locating the implementation of said interface method based on the table entry content.

The Applicants respectfully suggest that the Examiner has failed to provide a basis in fact and/or technical reasoning to reasonably support the determination that the resolving step as claimed in claim 20 *necessarily* flows from the teachings of Wilkinson et al. For this additional reason, the U.S.C. § 102 rejection of claim 20 is unsupported by the art and should be withdrawn.

Claim 21

Claim 21 recites:

The method of claim 20 wherein an indication of said implementation of said interface method comprises an index into a virtual method table.

The Applicants respectfully suggest that the Examiner has failed to provide a basis in fact and/or technical reasoning to reasonably support the determination that the indication of the implementation as claimed in claim 21 *necessarily* flows from the teachings of Wilkinson et al. For this additional reason, the U.S.C. § 102 rejection of claim 21 is unsupported by the art and should be withdrawn.

Claim 22

Claim 22 recites:

The method of claim 5 wherein said package further comprises at least one reference to an internal item.

The Applicants respectfully suggest that the Examiner has failed to provide a basis in fact and/or technical reasoning to reasonably support the determination that the package comprises at least one reference to an internal item as claimed in claim 22 *necessarily* flows from the teachings of Wilkinson et al. For this additional reason, the U.S.C. § 102 rejection of claim 22 is unsupported by the art and should be withdrawn.

Claim 23

Claim 23 recites:

The method of claim 22 wherein said internal item comprises a class and said reference comprises an offset within said package to a class record associated with said class.

The Applicants respectfully suggest that the Examiner has failed to provide a basis in fact and/or technical reasoning to reasonably support the determination that the internal item comprises a class and that the reference comprises an offset within the package to a class record associated with the class as claimed in claim 23 *necessarily* flows from the teachings of Wilkinson et al. For this additional reason, the U.S.C. § 102 rejection of claim 23 is unsupported by the art and should be withdrawn.

Claim 24

Claim 24 recites:

The method of claim 22 wherein said internal item comprises a static field and said reference comprises an offset within said package to a value for said static field.

The Applicants respectfully suggest that the Examiner has failed to provide a basis in fact and/or technical reasoning to reasonably support the determination that the internal item comprises a static field and that the reference comprises an offset within the package to a value for the static field as claimed in claim 24 *necessarily* flows from the teachings of Wilkinson et al. For this additional reason, the U.S.C. § 102 rejection of claim 24 is unsupported by the art and should be withdrawn.

Claim 25

Claim 25 recites:

The method of claim 22 wherein said internal item comprises a static method and said reference comprises an offset within said package to code associated with said static method.

The Applicants respectfully suggest that the Examiner has failed to provide a basis in fact and/or technical reasoning to reasonably support the determination that the internal item comprises a static method and the reference comprises an offset within the package to code associated with the static method as claimed in claim 25 *necessarily* flows from the teachings of Wilkinson et al. For this additional reason, the U.S.C. § 102 rejection of claim 25 is unsupported by the art and should be withdrawn.

Claim 26

Claim 26 recites:

The method of claim 22 wherein said internal item comprises an instance field and said reference comprises an offset within said package to a class record of said instance field and a field token.

The Applicants respectfully suggest that the Examiner has failed to provide a basis in fact and/or technical reasoning to reasonably support the determination that the internal item comprises an instance field and the reference comprises an offset within the package to a class record of the instance field and a field token as claimed in claim 26 *necessarily* flows from the teachings of Wilkinson et al. For this additional reason, the U.S.C. § 102 rejection of claim 26 is unsupported by the art and should be withdrawn.

Claim 27

Claim 27 recites:

The method of claim 22 wherein said internal item comprises a virtual method and said reference comprises an offset within said package to a class record of said virtual method and a method token.

The Applicants respectfully suggest that the Examiner has failed to provide a basis in fact and/or technical reasoning to reasonably support the determination that the internal item comprises a virtual method and the reference comprises an offset within the package to a class record of the virtual method and a method token as claimed in claim 27 *necessarily* flows from the teachings of Wilkinson et al. For this additional reason, the U.S.C. § 102 rejection of claim 27 is unsupported by the art and should be withdrawn.

Dependent Claims 34-37, 39-54, 61-64, and 66-81

Dependent claims 34-37 and 61-64 include limitations similar to claims 7-10. Claims 7-10 being allowable, claims 34-37 and 61-64 must also be allowable. Additionally, dependent claims 39-54 and 66-81 include limitations similar to claims 12-27. Claims 12-27 being allowable, claims 39-54 and 66-81 must also be allowable. Accordingly, the Applicants

respectfully request the U.S.C. § 102 rejection of claims 34-37, 39-54, 61-64, and 66-81 be withdrawn.

In view of the foregoing, it is respectfully asserted that the claims are now in condition for allowance.


Request for Allowance

It is believed that this Amendment places the above-identified patent application into condition for allowance. Early favorable consideration of this Amendment is earnestly solicited.

If, in the opinion of the Examiner, an interview would expedite the prosecution of this application, the Examiner is invited to call the undersigned attorney at the number indicated below. The Commissioner is hereby authorized to charge any additional fees or credit any overpayment to Deposit Account No. 50-1698.

Respectfully submitted,
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